

EXHIBIT A

Paper No. ____

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

GOOGLE LLC,
Petitioner,

v.

SINGULAR COMPUTING LLC,
Patent Owner.

Case No. IPR2021-00179
Patent No. 8,407,273

**PETITION FOR INTER PARTES REVIEW
UNDER 35 U.S.C. §§ 311-319 AND 37 C.F.R. § 42.1 et seq.**

APPENDIX LISTING OF EXHIBITS

Exhibit	Description
1001	U.S. Patent No. 8,407,273
1002	Prosecution History of U.S. Patent No. 8,047,273
1003	Declaration of Richard Goodin
1004	Curriculum Vitae of Richard Goodin
1005	U.S. Patent Appl. 12/816, 201 (“201 Application”)
1006	U.S. Patent Appl. Publ. No. 2010/0325186 A1 (“Bates-2010”)
1007	U.S. Patent App. Publ. No. 2007/0203967 (“Dockser”)
1008	Tong et. al, <i>Reducing Power by Optimizing the Necessary Precision/Range of Floating-Point Arithmetic</i> , IEEE Transactions on Very Large Scale Integration (VLSI) Systems, Vol. 8, No. 3, June 2000 (“Tong”) (from pages 6-19 of the Declaration of Gerard P. Grenier, Ex. 1025).
1009	U.S. Patent No. 5,689,677 (“MacMillan”)
1010	U.S. Patent Appl. Publ. No. 2007/0266071 (“Dockser-Lall”)
1011	U.S. Patent No. 6,065,209 (“Weiss”)
1012	Gaffar et. al, <i>Unifying Bit-width Optimization for Fixed-Point and Floating-Point Designs</i> , 12 th Annual IEEE Symposium on Field-Programmable Custom Computing Machines, April 20-23, 2004 (“Gaffar”) (from pages 22-31 of the Declaration of Gerard P. Grenier, Ex. 1028)
1013	European Patent Appl. Publ. No. 0 632 369 A1 (“Hekstra”)
1014	U.S. Patent No. 5,375,084 (“Begun”)
1015	U.S. Patent No. 4,933,895 (“Grinberg”)
1016	U.S. Patent No. 5,442,577 (“Cohen”)
1017	U.S. Patent Appl. Publ. No. 2003/0028759 (“Prabhu”)
1018	U.S. Patent No. 5,790,834 (“Dreyer”)
1019	U.S. Patent Appl. Publ. No. 2009/0066164 (“Flynn”)
1020	U.S. Patent No. 5,666,071 (“Hawkins”)
1021	A Matter of Size: Triennial Review of the National Nanotechnology Initiative (National Academies Press 2006), pages 15-44, 99-109
1022	Transcript of YouTube video on Practical Approximate Computing at University of California, Berkeley, March 2016 (“Bates transcript”), video available at https://www.youtube.com/watch?v=aHkWX3QctkM (last accessed Sep. 16, 2020)
1023	U.S. Patent No. 6,311,282 (“Nelson”)
1024	U.S. Patent No. 4,583,222 (“Fossum”)

1025	Declaration of Gerard P. Grenier regarding Tong et. al, <i>Reducing Power by Optimizing the Necessary Precision/Range of Floating-Point Arithmetic</i> , IEEE Transactions on Very Large Scale Integration (VLSI) Systems, Vol. 8, No. 3, June 2000
1026	Moshnyaga, <i>Energy Reduction in Queues and Stacks by Adaptive Bitwidth Compression</i> , Proceedings of the 2001 International Symposium on Low Power Electronics and Design, Aug. 6-7, 2001 (“Moshnyaga”), with IEEE Xplore information appended
1027	Simunic, <i>Energy-Efficient Design of Battery-Powered Embedded Systems</i> , IEEE Transactions on Very Large Scale Integration (VLSI) Systems, Vol. 9, No. 1, Feb. 2001 (“Simunic”), with IEEE Xplore information appended
1028	Declaration of Gerard P. Grenier regarding Gaffar et. al, <i>Unifying Bitwidth Optimization for Fixed-Point and Floating-Point Designs</i> , 12 th Annual IEEE Symposium on Field-Programmable Custom Computing Machines, April 20-23, 2004
1029	U.S. Patent Appl. Publ. No. 2007/0033572 (“Donovan”)
1030	U.S. Patent No. 5,623,616 (“Vitale”)
1031	David A. Patterson and John L. Hennessy, Computer Organization and Design (Morgan Kaufmann 3rd ed. Revised 2007) (“Patterson”), pages 189-217
1032	First Amended Complaint in <i>Singular Computing LLC v. Google, LLC</i> , 1-19-cv-12251 (D. Mass.) (Dkt. No. 37)
1033	Docket Report for <i>Singular Computing LLC v. Google, LLC</i> , 1-19-cv-12551 (D. Mass.)
1034	Memorandum in Support of Motion to Dismiss for Failure to State a Claim (Dkt. No. 41)
1035	Plaintiff’s Opposition to Defendant’s Rule 12(b)(6) Motion to Dismiss for Lack of Patentable Subject Matter, <i>Singular Computing LLC v. Google, LLC</i> , 1-19-cv-12251 (D. Mass.), Dkt. No. 44
1036	Memorandum and Order on Defendant’s Motion to Dismiss (Dkt. No. 51)
1037	Plaintiffs’ Preliminary Patent-Related Disclosures Pursuant to Patent L.R. 16.6(d)(1)(A)
1038	Scheduling Order for <i>Singular Computing LLC v. Google, LLC</i> , 1-19-cv-12551 (D. Mass.) (Dkt. No. 59)
1039	Transcript of Scheduling Conference held on July 24, 2020

1040	General Order 20-21, Second Supplemental Order Concerning Jury Trials and Related Proceedings, <i>In Re: Coronavirus Public Emergency</i> (D. Mass. May 27, 2020)
1041	Letter Re Reservation of Rights
1042	Prosecution History of U.S. Patent No. 8,150,902, issued from U.S. Patent Appl. No. 12/816,201
1043	Prosecution History of U.S. Patent No. 10,416,961
1044	Prosecution History of U.S. Patent No. 9,218,156
1045	Prosecution History of U.S. Patent No. 9,792,088
1046	Prosecution History of U.S. Patent No. 10,120,648
1047	Thomas Way et. al, <i>Compiling Mechanical Nanocomputer Components</i> , Global Journal of Computer Science and Technology, Vol. 10, Issue 2 (Ver. 1.0), April 2010, pp. 36-42 (“Way”)
1048	David Nield, <i>In a Huge Milestone, Engineers Build a Working Computer Chip out of Carbon Nanotubes</i> , Sciencealert.com, Dec. 7, 2019 (accessed Sep. 9, 2020) (“Nield”)
1049	Leah Cannon, <i>What Can DNA-Based Computers Do?</i> , MIT Technology Review, Feb. 4, 2015 (accessed Sep. 8, 2020) (“Cannon”)
1050	Katherine Bourzac, <i>The First Carbon Nanotube Computer</i> , MIT Technology Review, Sep. 25, 2013 (accessed Sep. 8, 2020) (“Bourzac”)
1051	Joe Touch et. al., <i>Optical Computing</i> , Nanophotonics 2017 6(3): 503-505 (“Touch”)
1052	Robert Allen, Ed., <i>The Penguin Complete English Dictionary</i> , (Penguin 2006) (“Penguin”), page 1411, definition of “supercomputer”
1053	<i>A Dictionary of Computing</i> (Oxford 6 th ed. 2008) (“Oxford”), page 500, definition of “supercomputer”
1054	U.S. Patent Appl. Pub. No. 2006/0270110 (“Steffen”)
1055	U.S. Patent Appl. Pub. No. 2009/0188705 (“Kacker”)
1056	U.S. Patent Appl. Pub. No. 2007/0050566 (“Lang”)
1057	U.S. Patent No. 6,622,135 (“Tremiolles”)
1058	U.S. Patent Appl. Pub. No. 2005/0235070 (“Young”)
1059	U.S. Patent No. 7,301,436 (“Hopper”)
1060	U.S. Patent Appl. Pub. No. 2003/0204760 (“Youngs”)
1061	U.S. Patent No. 10,416,961 (“’961 patent”)
1062	U.S. Patent No. 9,218,156 (“’156 patent”)

CERTIFICATE OF SERVICE UNDER 37 C.F.R. § 42.6(e)(4)

I certify that on November 6, 2020, I will cause a copy of the foregoing document, including any exhibits or appendices filed therewith, to be served via Overnight FedEx at the following correspondence address of record for the patent:

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Date: November 6, 2020

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